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10/760,992	01/20/2004	Elliott J. Straus	OMNZ 2 00014	1988
27885	7590	05/18/2007	EXAMINER	
FAY SHARPE LLP			LUU, CUONG V	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/760,992	STRAUS, ELLIOTT J.	

### Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 23 April 2007.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date: _____	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

Claims 1-10 are pending. Claims 1-10 have been examined. Claims 1-10 have been rejected.

The Examiner would like to thank the Applicant for the well-presented response, which was useful in the examination. The Examiner appreciates the effort to perform a careful analysis and make appropriate amendments to the claims.

### *Response to Arguments*

1. Applicant's arguments, see p. 4, filed 4/23/2007, with respect to the U.S.C. 101 rejections of claims 1-10 have been fully considered and are persuasive. The U.S.C. 101 rejections of claims 1-10 have been withdrawn.
2. Applicant's arguments filed 4/23/2007 with respect to the U.S.C. 102 rejections of claims 1-6 have been fully considered but they are not persuasive. The Applicant argues that Zuyev does not teach limitation "fitting results obtained from said theoretical kinetic model to a metamodel of the cure time as a function of an initiator level" in claim 1 since catalyst and initiator are completely different. The Examiner respectfully disagrees. On page 195 col. 2 of the page and the last 2 paragraphs of the column, Zuyev recites:

The kinetic model will then be used to generate two responses of interest, namely flow time ( $t_f$ ) and cure time ( $t_c$ ), at different combinations of the independent variables wall temperature ( $T_w$ ) and initiator level ( $I_L$ ). The flow time is the time before any reaction takes place and the cure time will be defined as the time to reach 90% conversion.

Castro and Griffith [1] have shown that the flow time can be safely assumed to be about half the time to finish all the inhibitor. The set of predictions obtained from the different runs will then be used to fit, via least squares regression, two second-order metamodels (Step (3)) similar to the one presented in Equation (1), that is, one metamodel per response. The ensuing mathematical programming model will contain the metamodel of the cure time ( $t_0$ ) as a function of the catalyst level ( $I_L$ ) and the wall temperature ( $T_w$ ) as the objective function to be minimized subject to the metamodel of the flow time ( $t_f$ ).

Zuyev mentions both initiator level and catalyst using the same symbol ( $I_L$ ). This fact renders a proper interpretation that catalyst and initiator mentioned by Zuyev are identical. Consequently, Zuyev does teach "fitting results obtained from said theoretical kinetic model to a metamodel of the cure time as a function of an initiator level and reaction temperature" (p. 2, col. 2, paragraph 5, lines 6-16 of the paragraph; p. 3, col. 1, paragraph 3). In addition, Zuyev teaches using the results to optimize the in-mold coating process for said molded article by minimizing the cycle time required for said in-mold coating process (p. 195 col. 1 of the page the paragraph 4). Claims 1-5, therefore, remain rejected.

3. As per claim 6, the Applicant applies the same argument as that of claim 1. For the same reasons discussed in item 2, the argument is not persuasive. In addition, Zuyev suggests placing said injection nozzle in said optimal placement position. The teaching of the second limitation in claim 6 suggests the placing of said injection nozzle in said optimal placement position. Claim 6, therefore, remains rejected.

4. As per claims 7-9, they are argued allowable for depending on claim 6. Since claim 6 remains rejected, claims 7-9 remain rejected.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1-6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Zuyev et al (Optimizing Injection Gate Location and Cycle Time for the In-Mold Coating (IMC)**

**Process, ANTEC 2001. Since pages are not numbered, for the purpose of examining, the examiner numbers them from 1 for the first page to 5 for the last page and columns 1 and 2 for each page) herein Zuyev.**

1. As per claim 1, Zuyev teach a method for minimizing the cure time of a thermoset in-mold coating for a molded article, said method comprising the steps of:

gathering information on the reactivity of said thermoset (p. 2, col. 2, paragraph 5, lines 1-3 of the paragraph);

using said information to develop a theoretical kinetic model representing a cure rate of said thermoset as a function of temperature and an initiator level in the coating (p. 2, col. 2, paragraph 5, lines 6-16 of the paragraph; page 3, Appendix A, col. 1 of the page, and paragraph 1 of the section);

fitting results obtained from said theoretical kinetic model to a metamodel of the cure time as a function of an initiator level and reaction temperature (p. 2, col. 2, paragraph 5, lines 6-16 of the paragraph; p. 3, col. 1, paragraph 3); and  
minimizing said cure time using said metamodel for a minimum specified flow time (p. 2, col. 2, paragraph 4).

using the results to optimize the in-mold coating process for said molded article by minimizing the cycle time required for said in-mold coating process (p. 195 col. 1 of the page the paragraph 4).

2. As per claim 2, Zuyev teach said theoretical kinetic model is a free radical based kinetic model (p. 3, col. 1, paragraph 9).
3. As per claim 3, Zuyev teach said step of gathering information on the reactivity of the thermoset being performed by conducting differential scanning calorimetry scans on said thermoset (p. 2, col. 2, paragraph 5, lines 3-4 of the paragraph).
4. As per claim 4, Zuyev teach said kinetic model being used to generate flow time and cure time of said thermoset as functions of mold temperature and initiator level in said thermoset.
5. As per claim 5, Zuyev teach instructions for carrying out said method being contained in computer readable medium format (p. 1, col. 2, paragraph 3. Mentioned CAD software to carry out the method inherits this limitation).

6. As per claim 6, Zuyev teach a method for optimizing the location of an in-mold coating injection port in a mold so as to minimize the flow time for an in-mold coating to flow over at least a part of a molded article, said method comprising the steps of:  
predicting a coating fill pattern in said mold (p. 1, col. 2, paragraph 5, lines 6-8); and  
using said pattern to determine optimal placement of a coating injection nozzle so as to minimize the flow time for an in-mold coating to flow over at least a part of a molded article and to reduce the presence of surface defects of said coating (p. 2, col. 1, paragraph 2).  
placing said injection nozzle in said optimal placement position (the teaching of the second limitation in this claim suggests the placing of said injection nozzle in said optimal placement position.)

7. As per claim 10, Zuyev teach instructions for carrying out said method being contained in computer readable medium format (p. 1, col. 2, paragraph 3. Mentioned CAD software to carry out the method inherits this limitation).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuyev as applied to claim 6 above and further in view of Chen et al (In-Mold Functional coating of Thermoplastic Substrates: Process Modeling, Antec 2001. Since pages are not**

**numbered, for the purpose of examining, the examiner numbers them from 1 for the first page to 5 for the last page and columns 1 and 2 for each page) herein Chen.**

8. As per claim 7, Zuyev do not teach said step of predicting a coating fill pattern in said mold being performed by determining the relation between a pressure in said mold and a flow rate of said coating.

Chen teaches this limitation (p. 2, col. 2, paragraph 5 and the last 2 lines of this col.; p. 3, col. 1, lines 1-2).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Zuyev and Chen. Chen's teaching would have developed mathematical models to predict the injection pressure needed to inject the coating (p. 1, col. 2, the last 2 lines; p. 2, col. 1, line 1).

9. As per claim 8, Zuyev do not teach said step of predicting a coating fill pattern in said mold being performed by determining the relation between a pressure in said mold and a coating thickness on said substrate.

Chen teaches this limitation (p. 2, col. 1, paragraph 6, lines 1-5 of the paragraph).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Zuyev and Chen. Chen's teaching would have achieved a more uniform coating thickness (p. 2, col. 2, paragraph 3, lines 4-7).

10. As per claim 9, these limitations have already been discussed in claims 7 and 8. They are, therefore, rejected for the same reasons.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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